Claims

1. An apparatus comprising:

a preemption manager having as an input, a Quality of Service (QoS) and channel conditions and outputting preemption values; and

a bandwidth allocation adaptor having as an input a first set of queue weights, channel quality information, and the preemption values, and outputting modified queue weights based on the first set of queue weights, the channel quality information, and the preemption values.

2. The apparatus of claim 1 further comprising a packet scheduler having the modified queue weights as an input, and scheduling packets based on the modified queue weights.

3. The apparatus of claim 2 further comprising:

a plurality of data queues coupled to the packet scheduler, wherein each data queue within the plurality of data queues has an associated service-level agreement.

4. An apparatus comprising:

a bandwidth allocation adaptor having a channel quality vector (σ) as an input and outputting a set of queue weights ($\mathbf{B'}$) based on the channel quality information.

5. The apparatus of claim 4 wherein the bandwidth allocation adaptor additionally has a set of preemption values ($\mathbf{P}$) as an input, wherein the queue weights are additionally based on the set of preemption values.

6. The apparatus of claim 4 wherein the bandwidth allocation adaptor additionally has a set of original queue weights ($\mathbf{B}$) as an input, wherein the queue weights are additionally based on the set of original queue weights.

7. The apparatus of claim 4 further comprising:

a packet scheduler having $\mathbf{B'}$ as an input, and scheduling packets based on $\mathbf{B'}$.

8. The apparatus of claim 7 further comprising:

a plurality of data queues coupled to the packet scheduler, wherein each data queue within the plurality of data queues has an associated service-level.

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9. A method comprising the steps of:

receiving channel conditions (σ); and

calculating queue weights (**B'**) based on the channel conditions.

10 10. The method of claim 9 further comprising the step of:

outputting the queue weights to a packet scheduler, wherein the packet scheduler utilizes the queue weights for scheduling packets.

11. The method of claim 9 further comprising the step of:

15 receiving preemption values (**P**); and

wherein the step of calculating the queue weights (**B'**) comprises the step of additionally basing the calculation of the queue weights on the preemption values.

12. The method of claim 11 further comprising the step of:

20 receiving original queue weights (**B**); and

wherein the step of calculating the queue weights (**B'**) comprises the step of additionally basing the calculation of the queue weights on the original queue weights.

25 13. A method comprising the steps of:

receiving channel conditions (σ);

receiving preemption values (**P**);

receiving original queue weights (**B**); and

calculating modified queue weights (**B'**) based on σ, **P**, and **B**.

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14. The method of claim 13 further comprising the step of:

outputting **B'** to a packet scheduler, wherein the packet scheduler utilizes **B'** for scheduling packets.